PROJECT NUMBER: 8101
PROJECT TITLE: Cigarette Testing Services Division
SECTION LEADER: Jane Y. Lewis
PERIOD COVERED: June, 1989

I. MARKET ACTIVITY

A. **Objective**: To monitor and report new brand introductions and brand modifications for the domestic and international cigarette markets.

B. **Results**:

1. Japan - New Brands

F. J. Burrus, Inc. introduced Parisienne Mild King Size (10 mg tar, 0.7 mg nicotine) and Pierre Cardin Lights 100 (4 mg tar, 0.4 mg nicotine) on April 1.

The House of Craven introduced Craven "A" Super Mild 100 Box (9 mg tar, 0.6 mg nicotine) and Craven "A" 100 Box (12 mg tar, 1 mg nicotine) on April 1.

2. Japan - 17 mm Circumference Cigarettes

Japan Tobacco, Inc. introduced Epique Superslim 100 Menthol cigarettes on April 1. This cigarette delivers 9 mg tar, 0.9 mg nicotine and 0.4 mg smoke menthol.

American Cigarette Company, Ltd. introduced Vogue Superslims 100 (plain and menthol) cigarettes. These cigarettes deliver 8 mg tar, 0.7 mg nicotine and 0.3 mg smoke menthol.

II. INDUSTRY MONITOR

A. **Objective**: To produce a monitor cigarette (four million units) to be used as an industry-wide monitor for smoking analyses (TPM, nicotine and water).

B. **Results**: The monitor was manufactured in Semiworks June 7-13. The cigarettes were randomized and canned the week of June 26.

During production of the monitor, a random sample from each of the 17 individual pallets was obtained. These 17 individual samples were tested and the overall average of the results are as follows:

Tar, mg/cigt.	17.5
Nicotine, mg/cigt.	1.15
Weight Control, %	
±20 mg	91
±25 mg	98
Firmness, mm	2.78
Oven Volatiles, % (As Is)	13.63

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C. Plans: The monitor will be calibrated internally and then distributed industry-wide for collaborative calibration.

III. DYNAMIC RTD/VENTILATION

A. Objective: To obtain the capability of generating RTD and ventilation data on cigarettes during smoking.

B. Results: Operating parameters for the RTD and ventilation while smoking instrument have been optimized. Capillary standards, certified by the Standards Laboratory, yielded significantly lower values on the dynamic smoker. This can be explained by the way the puff is taken on the smoker. The sine function predicts a peak flow of 1600 cc/min. on the smoker, whereas, 1050 cc/min. constant flow is generated on the static instruments.

The length of the capillary standards used is not long enough to establish laminar flow and due to the mechanics of the smoking machine, the machine will never behave as the Pressure Drop instruments used for total RTD measurements. The results obtained from the capillaries are reproducible from day-to-day and can be used to monitor the instrument's operation.

Preliminary puff-by-puff for the RTD and ventilation of monitor cigarettes, M#25 and LDM#5, have been obtained.

C. Plans: Continue testing of monitor cigarettes to establish trends in puff-by-puff profiles and to assure consistent operation of the dynamic instrument.

IV. NICOTINE IN SMOKE FOR ART CIGARETTES

A. Objective: Develop methodology to analyze samples with a low nicotine to tar ratio and analyze samples as needed.

B. Results: A method and a completion report have been written detailing the modifications to the GC procedure needed for measuring nicotine in smoke for ART cigarettes. Wide bore capillary chromatography is needed to clearly resolve nicotine in these samples that have a low nicotine to tar ratio. Precision was found to be 13% (relative standard deviation at 2-sigma) at nicotine levels of 0.04 and 0.07 mg/cigt. This indicates that nicotine is accurately reported to 3 places behind the decimal (2 significant figures) at these levels.

Nicotine results from the wide bore method were compared to those from the conventional GC methods used by CTSD and TITL. Results generally agree within 0.01 mg/cigt. with the wide bore results being slightly higher than either conventional method.

C. Plans: This method is being certified by U.S. Testing. ART samples are being analyzed as needed using the new methodology.

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